

**Amendments to the Specification:**

In the specification, please replace the heading that begins on page 5, line 1 in its entirety with the following:

PRICING OF UNDERLYING RISK VEHICLES, REGARDLESS OF WHETHER THEY  
CONSIST OF ~~ARE~~ ASSETS OR LIABILITIES, TRADED OR UNDERWRITTEN

Please replace the 2<sup>nd</sup> paragraph on page 17, line 8 in its entirety with the following:

A payoff function is handled the same way as an underlying risk vehicle, in the computer-implemented system and method, and computer-readable medium for use with computer means, of the invention, that is, a series of cashflow values are multiplied to their respective probability weights after they have been transformed, except that these cashflow values have been generated by applying the payoff function to each variable outcome of the underlying risk vehicle, as shown in Figure 3, step 315, Figure 4, step 409, and Figure 5, step 515.

Please replace the 3<sup>rd</sup> paragraph on page 24, line 16 in its entirety with the following:

The Wang Price is produced in Figure 2, step 212, for an underlying risk vehicle identified as a group of one or more traded assets and liabilities; Figure 3, step 312, for an underlying risk vehicle identified as a group of one or more traded assets and liabilities; Figure 3, step 319, for contingent payoffs for the outcome of an ~~these~~ underlying risk vehicle identified as a group of one or more traded assets and liabilities; Figure 5, 512, for the outcome of an underlying risk

vehicle identified as a group of one or more underlying assets and ~~underwritten assets and~~ liabilities; and Figure 5, step 519, for contingent payoffs for the outcome of an underlying risk vehicle identified as a group of one or more ~~these~~ underwritten assets and liabilities.

Please replace the 4<sup>th</sup> paragraph on page 25, line 19 in its entirety with the following:

#### WEIGHTED VALUES

In the computer-implemented system and method, and computer-readable medium for use with computer means, of the invention, the product of multiplying the cashflow values of a distribution to their new probability weights, after decumulation, for an underlying risk vehicle for a selected group of traded or underwritten assets and liabilities, as shown in Figure 2, step 209; Figure 3, step 309; Figure 4, step 410; and Figure 5, step 509, or, alternatively, for a contingent payoff, as shown in Figure 3, step 317, Figure 4, step 411, and Figure 5, step 517.

Please replace the 2<sup>nd</sup> paragraph on page 30, line 8 in its entirety with the following:

Assets and liabilities, whether traded or underwritten, are risk vehicles, which means that they are the legal contrivances for undertaking some type of capitalized risk -- for example,, that is, a financial or insurance risk. One begins using the invention, by identifying an underlying ~~selecting either one~~ risk vehicle as a container of sorts, itself holding ~~or~~ a group of one or more individual risk vehicles, ~~which can be~~ assets or liabilities, each of and which can be either traded or underwritten. The invention is capable of outputting ~~the underwritten,~~ to evaluate their fair value of this underlying risk vehicle,, which is defined as its ~~their~~ price in a transaction,, after an

adjustment for risk that is manifested in the tabled distribution of outcomes for that underlying risk vehicle.

Please replace the 3<sup>rd</sup> paragraph on page 30, line 15 in its entirety with the following:

If the ~~underlying group of risk vehicle is ones are a group of traded or underwritten assets and liabilities~~ whose “market price of risk” is known, or already inferred, then one would use Figure 2 as the process for obtaining the fair value of that underlying risk vehicle, when that fair price is not yet known, or, if the latest market price for the underlying is not known. ~~assets and liabilities in question.~~ This fair value of the underlying risk vehicle is called the Wang Price. For one skilled in the art, the “market price of risk” is the Sharpe Ratio for normally distributed outcomes, or, interchangeably, for outcomes with lognormal returns. This “market price of risk” is also identified in the prior art literature as ~~interchangeably called~~ the lambda value.

Please replace the 4<sup>th</sup> paragraph on page 30, line 22 in its entirety with the following:

If the risk vehicle is a contingent payoff, like an option, ~~referencing for a traded~~ underlying risk vehicle, like a warrant on a stock, or a call provision on a bond, then one would use Figure 3 as the process for obtaining the fair value of the contingent payoff in question. The fair value of the ~~traded underlying risk vehicle instrument is called the Wang Price for the instrument, and is obtained by iterating lambda, whose starter value can be the trading equivalent of the “market price of risk,” called the Sharpe Ratio, until the sum of weighted outcomes reflecting the variability of such fair value this Wang Price converges to equal the last known market price for the instrument.~~ After this convergence has been accomplished, the function for the contingent payoff is applied to each of the variable outcomes of the underlying, to obtain the fair value of

~~Wang Price for the contingent payoff. The fair value of the underlying risk vehicle obtained by this process is identified as the Wang Price for the underlying risk vehicle. The fair value of the contingent payoff obtained by this process is identified as the Wang Price for the contingent payoff.~~

Please replace the 2<sup>nd</sup> paragraph on page 31, line 8 in its entirety with the following:

If the last known market price for a traded underlying risk vehicle is known, one would use Figure 4 as the process for obtaining the true “market price of risk,” or  $\lambda$ , for that risk vehicle. If the traded underlying risk vehicle has normally distributed outcomes, or, interchangeably, outcomes with lognormal returns, this process will produce a “market price of risk” that is equal to the Sharpe Ratio. If the traded risk vehicle, however, has non-normally distributed outcomes, or non-lognormal returns, this process will produce a “market price of risk” that is more accurate than, ~~for the Sharpe Ratio. purposes of evaluating relative risk.~~

Please replace the 3<sup>rd</sup> paragraph on page 31, line 16 in its entirety with the following:

If the risk vehicle is a contingent payoff, ~~for an underwritten risk vehicle~~, like a loss layer of reinsurance, referencing an underwritten underlying risk vehicle, then one would use Figure 5 as the process for obtaining the fair value of the contingent payoff in question. The fair value of the underwritten underlying risk vehicle ~~is called the Wang Price for the risk, and is again obtained by iterating  $\lambda$ , whose starter value can be~~ here the underwriting equivalent of the “market price of risk” called the “underwriting load of risk,” until the sum of weighted outcomes reflecting the variability of such fair value ~~this Wang Price~~ converges to equal similar capital

loadings for similarly underwritten risks. After this convergence has been accomplished, the function for the contingent payoff is applied to each of the variable outcomes of the underlying, to obtain the fair value of the contingent payoff. The fair value of the underlying risk vehicle obtained by this process is identified as the Wang Price for the underlying risk vehicle. The fair value of the contingent payoff obtained by this process is identified as the Wang Price for the contingent payoff.~~Wang Price for the contingent payoff.~~

Please replace the 2<sup>nd</sup> paragraph on page 32, line 4 in its entirety with the following:

For greater precision in evaluating fair value of an underlying risk vehicle that is a group of one or more traded and underwritten assets and liabilities whose data collections of sampled outcomes and sampled probabilities may be incomplete, or for greater consideration in evaluating risk vehicles whose outcomes are rare, extreme, or outlying, then one would use Figure 6 as the core process, or kernel, for transforming the weighted probabilities of the risk vehicle in question. The core process in Figure 6 is a two-factor model for evaluating fair value. The first factor is the “market price of risk” or its underwriting equivalent, and the second factor is called “parameter uncertainty,” to incorporate the possible inadequacy for sampled outcomes and sampled probabilities used. The two-factor model of the core process transforms the cumulative probability  $F(y)$  to yield a new cumulative probability  $F^*(y)$ , as shown in Figure 6, steps 602 through 606.

Please replace the 3<sup>rd</sup> paragraph on page 32, line 18 in its entirety with the following:

For the first example of this method, refer to Table 1, which is an unsorted Intel stock price distribution for closing prices for 24 monthly periods, from June 1998 until June 2000. Intel is identified as an underlying a-traded risk vehicle, consisting of a group of only one traded asset, so the method of the invention turns to Figure 2 to find the fair value for that underlying risk the vehicle at some point in the future. This fair value is called pricing, with adjustment for risk. Under the process of this invention, this pricing is obtained by generating a useful data result, an output, called the Wang Price.

Please replace the 1<sup>st</sup> paragraph on page 33, line 1 in its entirety with the following:

In Figure 2, the method starts by determining the objective of the process. The objective of the process is to find the Wang Price for the future value of the risk vehicle in question, 201. The future value of Intel at 1 month from the time of the last market quote is the objective. This satisfies steps 201, where the particular future date has been described, by a horizon date of 1 month, and 202, where the selection of the group of one or many underwritten and traded assets and liabilities have been described, by Intel stock. Thus the underlying risk vehicle consists solely of Intel stock.

Please replace the 3<sup>rd</sup> paragraph on page 37, line 13 in its entirety with the following:

The NORMINV function in Excel returns the inversion of the standard normal cumulative distribution, for the specified probability weight, mean, and standard deviation, when populated by the following three parameter values. X is the probability value corresponding to the normal distribution, between the numbers 0 and 1 inclusive. The number 0 is the arithmetic mean of the

distribution. The number 1 is the standard deviation of the distribution. (NORMSINV is a summary function for the NORMINV function having a 0 mean and a 1 standard deviation, and can be used for the purposes described herein as well.)

Please replace the 4<sup>th</sup> paragraph on page 38, line 22 in its entirety with the following:

The NORMDIST function in Excel returns the standard normal cumulative distribution, for the specified probability weight, mean, and standard deviation, when populated by the following four parameters. X is the value for which one wants the distribution. The number 0 is the arithmetic mean of the distribution. The number 1 is the standard deviation of the distribution. The number 1 is the logical value for a cumulative value. (NORMSDIST is a summary function for the NORMDIST function having a 0 mean and a 1 standard deviation, and can be used for the purposes described herein as well.)

Please replace the 4<sup>th</sup> paragraph on page 42, line 20 in its entirety with the following:

The method of the process for Figure 2 can be used to obtain a price, after adjustment for risk, for an underlying risk vehicle that consists of a group of any number of other traded assets and liabilities, such as stocks or other equity securities, bills, bonds, notes, or other debt securities, currencies of various countries, commodities of physical, agricultural, or financial delivery, asset-backed or liability linked securities or contractual obligations, and weather derivatives and other observable physical phenomena whose outcomes can be linked to financial outcomes. As generated by the method, this price, is called the Wang Price.

Please replace the 2<sup>nd</sup> paragraph on page 43, line 5 in its entirety with the following:

The Wang Price, after discounting, is a useful data result, because it represents the present fair value of an underlying risk vehicle that itself can be an asset or a liability, or a group of any greater number of assets or liabilities. ~~liability.~~ This present fair value can be compared to the present fair value of other underlying risk vehicles, or of other financial instruments, on an even playing field, so that risk management professionals can identify, monitor, acquire, and dispose of assets and liabilities according to relative comparisons of expected portfolio risks and returns.

Please replace the heading on page 43, line 11 in its entirety with the following:

EXAMPLE 2:

FINDING THE FAIR VALUE FOR AN OPTION ON A TRADED UNDERLYING RISK  
VEHICLE

Please replace the 3<sup>rd</sup> paragraph on page 43, line 13 in its entirety with the following:

For the second example of this method, refer to Table 5, which is a European call option at a strike price of \$140 on an Intel stock price distribution for closing prices for 24 monthly periods, from June 1998 until June 2000, whose probabilities have already been transformed by the previous example. Intel has been identified already as a traded underlying risk vehicle, so the method of the invention turns to Figure 3 to find the fair value for the contingent payoff on that underlying risk vehicle at some point in the future. Under the process of this invention, this pricing is obtained by generating a useful data result for the underlying stock, in the form of an



output called the Wang Price, and then applying a payoff function of  $\text{MAX}(140-X,0)$  to the distorted probabilities~~variable outcomes~~ of the underlying stock, representing X.

Please replace the 4<sup>th</sup> paragraph on page 43, line 22 in its entirety with the following:

In Figure 3, the method starts by determining the objective of the process. The objective of the process is to find the Wang Price for the future value of the contingent payoff on the underlying risk vehicle, 301.

Please replace the 1<sup>st</sup> paragraph on page 44, line 1 in its entirety with the following:

The future value of the European call option whose strike price is \$140 at 1 month from the time of the last market quote is the objective. This satisfies steps 301, where the particular future date has been described, by a horizon date of 1 month, and 302, where the, selection of a traded underlying risk vehicle~~instrument~~ has been described as consisting of a single asset, namely,~~by~~ Intel stock.

Please replace the 4<sup>th</sup> paragraph on page 47, line 21 in its entirety with the following:

The method of the process for Figure 3 can be used to obtain a price, after adjustment for risk, for contingent payoffs on any~~for~~ other traded underlying risk vehicle, consisting of any group of one or more assets and liabilities, such as options on stocks or other equity securities, options on bills, bonds, notes, or other debt securities, options on currencies of various countries, options on commodities of physical, agricultural, or financial delivery, options on asset-backed or

liability linked securities or contractual obligations, and options on weather derivatives and other observable physical phenomena whose outcomes can be linked to financial outcomes.

Please replace the 2<sup>nd</sup> paragraph on page 48, line 7 in its entirety with the following:

The Wang Price, after discounting, is a useful data result, or output, because it represents the present fair value of an underlying risk vehicle for any grouping of one or more assets or liabilities. ~~asset or liability~~. This present fair value can be compared to the present fair value of other underlying risk vehicles, ~~financial instruments~~, on an even playing field, so that risk management professionals can identify, monitor, acquire, and dispose of underlying risk vehicles ~~assets and liabilities~~ according to expected portfolio risks and returns.

Please replace the 2<sup>nd</sup> paragraph on page 49, line 4 in its entirety with the following:

The corporate bond is a traded underlying risk vehicle, so the method of the invention turns to Figure 4 to find the “market price of risk” for the underlying risk vehicle – consisting of a single asset, namely the corporate bond -- at some point in the future. This “market price of risk” is a useful data result, because it can be compared favorably, or unfavorably, to the “market price of risk” of other underlying risk vehicles, having otherwise ~~with~~ similar expected returns. Under the process of this invention, iterating the “market price of risk” is used to discount the future Wang Price, until the discounted Wang Price equals the last market price for that underlying risk vehicle.

Please replace the 3<sup>rd</sup> paragraph on page 49, line 12 in its entirety with the following:

In Figure 4, the method starts by determining the objective of the process. The objective of the process is to find the “market price of risk” for the future value of the underlying risk vehicle in question, 401. The future value of the corporate bond 1 year from the time of the last market quote is the objective. This satisfies steps 401, where the particular future date has been described, by a horizon date of 1 year, and 402, where the selection of a traded underlying risk vehicle asset has been described, by the corporate bond.

Please replace the 1<sup>st</sup> paragraph on page 52, line 1 in its entirety with the following:

The method on Figure 1 then follows step 104, by taking the expression of (NORMINV(COLUMN\_9C,0,1)),(NORMINV(COLUMN\_9C,0,1)) and applies a shift, by the selected lambda value of step 406. The value of 0.6980 is thus added to the (NORMINV(COLUMN\_9C,0,1)).9C,0,1). This satisfies step 104.

Please replace the 2<sup>nd</sup> paragraph on page 52, line 6 in its entirety with the following:

The method on Figure 1 then follows step 105, by applying the normal distribution to each of these shifted results. We apply the Excel function of NORMDIST to the expression NORMINV(COLUMN\_9C,0,1)+LAMBDA, followed by the parameters 0,1,1 to get a complete kernel, or core process, expression of:

NORMDIST(NORMINV(COLUMN\_9C,0,1)+LAMBDA,0,1,1).

NORMDIST(NORMINV(COLUMN\_9C,0,1)+LAMBDA,0,1,1)).

Please replace the 4<sup>th</sup> paragraph on page 56, line 15 in its entirety with the following:

The output of the Wang Price, after discounting, is a useful data result, because it represents the present fair value of an underlying risk vehicle consisting of a group of one asset or more assets or liabilities. ~~liability~~. This present fair value of the underlying risk vehicle can be compared to ~~that the present fair value~~ of other underlying risk vehicles, ~~financial instruments~~, on an even playing field, so that risk management professionals can identify, monitor, acquire, and dispose of underlying risk vehicles assets and liabilities according to expected portfolio risks and returns.

Please replace the 3<sup>rd</sup> paragraph on page 57, line 17 in its entirety with the following:

In Figure 5, the method starts by determining the objective of the process. The objective of the process is to find the Wang Price for the future value of the underlying risk vehicle in question, 501. The fair value of the earthquake contingency contract in 1 year, from the perspective of a Small Insurance Company, is the objective. Such a fair value, in the insurance world, is called a pure premium. The pure premium would be charged by the Small Insurance Company, to break even on the standalone cost of the contract, after an adjustment for risk.

Please replace the 2<sup>nd</sup> paragraph on page 61, line 5 in its entirety with the following:

The Wang Price, after discounting, is a useful data result, because it represents the present fair value of an asset or liability. This present fair value can be compared to the present fair value of other financial instruments, on an even playing field, so that risk management professionals can

identify, monitor, acquire, and dispose of underlying risk vehicles consisting of a group of one or more assets and liabilities according to expected portfolio risks and returns.

Please replace the 2<sup>nd</sup> paragraph on page 62, line 6 in its entirety with the following:

The process in Figure 5 covers the Wang Price for the underlying underwritten contract, which is covered in steps 501 to 512. The ~~underlying-underwritten~~ underlying risk vehicle ~~contract~~ is the same earthquake contingency contract that was priced in Example 4. The discounted Wang Price for this contract was \$55.18, as found in step 512 of the Example 4 process.

Please replace the 1<sup>st</sup> paragraph on page 64, line 1 in its entirety with the following:

As an example of step 516, the contingent payoff at the top of Column 13A is \$0. The distorted probability at the ~~top~~bottom of Column 12E is 0.7060. By way of multiplication, the resulting weighted payoff is \$0, at the top of Column 13B.

Please replace the 2<sup>nd</sup> paragraph on page 64, line 5 in its entirety with the following:

The contingent payoff at the bottom of Column 13A, however, is \$71.83. The distorted probability at the bottom of Column 12E is 0.1194. By way of multiplication, the resulting weighted payoff is \$8.58, at the bottom~~top~~ of Column 13B.

Please replace the heading at the end of page 68, line 20 in its entirety with the following:

EXAMPLE 6:

FINDING THE FAIR VALUE FOR AN UNDERWRITTEN UNDERLYING RISK VEHICLE  
WHOSE PROSPECTIVE FUTURE VALUES CAN BE EITHER NEGATIVE OR POSITIVE

Please replace the 4<sup>th</sup> paragraph at the end of page 68, line 23 in its entirety with the following:

For the sixth example of this method, refer to Table 6, which provides a series of outcomes in 1 year for a special kind of underlying risk vehicle. A risk vehicle can have a wide range of prospective future cashflow outcomes, including possible negative values, or possible positive values, for the same future point in time. A blended risk vehicle, providing outcomes both of an asset and of a liability, presents a special difficulty to pricing methods of the prior art.

Please replace the 4<sup>th</sup> paragraph on page 73, line 19 in its entirety with the following:

The Wang Price, after discounting, is a useful data result, because it represents the present fair value of an asset or liability. This present fair value can be compared to the present fair value of other financial instruments, on an even playing field, so that risk management professionals can identify, monitor, acquire, and dispose of underlying risk vehicles, each of which is a group consisting of one or more assets and liabilities, according to expected portfolio risks and returns.

Please replace the heading that begins on page 4, line 1 in its entirety with the following :

EXAMPLE 7:

FINDING THE FAIR VALUE FOR A CONTINGENT PAYOFF FOR AN UNDERLYING  
RISK VEHICLE WHOSE PROSPECTIVE FUTURE VALUES CAN BE NEGATIVE OR  
POSITIVE

Please replace the 1<sup>st</sup> paragraph on page 74, line 5 in its entirety with the following:

For the seventh example of this method, refer to Table 7, which provides a series of outcomes in 1 year for a special kind of underlying risk vehicle, ~~instrument~~, already explored in Example 6. Under the process of this invention, by following the steps in Figure 3, the fair value of the risk vehicle was found to be \$1.96, equal to the last market price for the risk vehicle. This fair value was discovered by applying a lambda value for the distribution of the underlying risk vehicle, of 0.10, which was substantially different than that of the lambda value that would have been derived from a Sharpe Ratio.

Please replace the 2<sup>nd</sup> paragraph on page 74, line 11 in its entirety with the following:

Table 7 provides the series of prospective outcomes in 1 year for the medical insurance policy, in Column 6A. The risk vehicle has prospective future cashflow outcomes that are both negative and positive. For this example, the method calculates the fair value of a put option with a strike price of \$0.00. The payoff function for this put option is:

MAX(-Column\_6A,0), that is, the maximum of either the negative of a prospective future cashflow value, which itself would be negative, or zero.

Please replace the 2<sup>nd</sup> paragraph on page 75, line 4 in its entirety with the following:

The method then moves to apply a payoff function to the prospective future cashflow outcomes of the underlying, as found in Column 7C, step 309. 315.—The results of this payoff function are shown in Column 6A. For example, the prospective future cashflow outcome at the top of Column 6A, \$-123, is taken by the payoff function MAX(-Column\_6A,0), to produce a positive payoff function of \$123. This is because the strike price of \$0, minus the risk vehicle outcome of \$-123, is worth a positive \$123. With the payoff function applied to all of the prospective future cashflow outcomes, as found in Column 7C, this satisfies step 315.

Please replace the 2<sup>nd</sup> paragraph on page 76, line 4 in its entirety with the following:

The method then discounts this Wang Price by the risk-free interest rate, step 318. The risk-free interest rate is 0.07, or 7.00%, annually. The Wang Price of \$17.88 is reduced by 7.00% to \$16.71. \$16.41, This satisfies step 318, and completes the second part of the process for Figure 3, at step 314. This completes Example 7.

Please replace the 3<sup>rd</sup> paragraph on page 76, line 9 in its entirety with the following:

One skilled in the art would notice that fair value for the put option, at \$16.71, is greater than the fair value of the underlying risk vehicle, at \$1.46. This reflects the fact that the underlying risk



vehicle has a significant degree of prospective negative value, in the form of only-negative outcomes, embedded within the overall slight positive value, reflecting all of the negative and positive outcomes, averaged together.~~value.~~

Please replace the heading that begins on page 77, line 1 in its entirety with the following:

EXAMPLE 8:

FINDING THE FAIR VALUE FOR AN UNDERLYING RISK VEHICLE WITH A RARE BUT EXTREME OUTCOME

Please replace the 3<sup>rd</sup> paragraph on page 80, line 12 in its entirety with the following:

The Wang Price, after calibration of lambda, and calibration of the “k” degrees of freedom, and after any needed discounting, is a useful data result, because it represents the present fair value of a liability. This present fair value can be compared to the present fair value of other financial instruments, on an even playing field, so that risk management professionals can identify, monitor, acquire, and dispose of underlying risk vehicles comprised of a group of one or more assets and liabilities according to expected portfolio risks and returns.